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## BOTANY.

**Some Botanical Collections.**—That most valuable distribution, Ellis and Everhart's "North American Fungi" has recently completed its thirty-second century, carrying the total number of specimens up to 3200. On looking over the alphabetical index one notes especially that this century includes of *Cercospora*, 8 species; *Cylindrosporium*, 3; *Glæosporium*, 3; *Microsphaera*, 2; *Phyllosticta*, 5; *Puccinia*, 5; *Septoria*, 6; *Uredo*, 3; *Uromyces*, 2; *Ustilago*, 1.

The uniform, and well-known excellence of the specimens in this distribution, needs no further words of commendation here. Those who can not obtain this set should hasten to secure the second edition which bears the name of "Fungi Columbiani."

F. S. Collins, Isaac Holden and W. A. Setchell propose soon to begin the publication of North American algæ under the title of "Phycotheca Boreali-Americana." The first fascicle of 50 specimens will contain species of *Oscillaria*, *Lyngbya*, *Calothrix*, *Monostroma*, *Ulothrix*, *Drapanaldia*, *Rhizoclonium*, *Caulerpa*, *Lemanea*, *Chondria*, *Polysiphonia*, *Microcladia*, etc. It is intended "to include all families of algæ, both fresh-water and marine, except that no provision has yet been made for diatoms, desmids or charads," but the authors state that these "may be included later." This work will be truly North American, including the whole continent and its adjacent seas from the Arctic Ocean to the Isthmus of Panama, and the West India Islands. The low price (five dollars per fascicle) places it within reach of every college botanical department. Those interested should apply to Frank S. Collins, Malden, Mass.

Josephine E. Tilden of the University of Minnesota has begun the distribution of the fresh-water algæ of the upper Mississippi Valley. It will be important as supplying for the first time a series of these plants from a new region. For century I the price is ten dollars.

The Flora of Amador, Calaveras and Alpine counties, California, is offered to the public in sets of prepared specimens at seven dollars per hundred by George Hansen of the Experiment Station at Jackson, California. The sets are said to contain many varieties and novelties.

Professor F. L. Harvey, of Orono, Me. proposes to issue sets of the Weeds and Forage Plants of Maine, embracing about 300 species. They are intended especially for the use of schools and "granges", and are sent out mounted and labeled. The moderate price (ten dollars per

hundred) should place them in every high school in Maine, as well as in the herbaria of many of the agricultural colleges in other states.

Professor Penhallow, of Montreal, Canada, has prepared a "Type Series of North American Coniferæ," consisting of microscopical sections of the wood, stained, and mounted in balsam. Each species is represented by transverse, radial and tangential sections. The series contains 264 slides and is sold at \$120.00. It is the outgrowth of studies made by Professor Penhallow upon North American Conifers looking to a classification based upon the anatomy of the wood. The results of these studies are to be published shortly, and will add to the interest of the prepared specimens.

We have already noticed A. H. Curtiss's "Second Distribution of Plants of the Southern United States," of which Series I and II are now ready. (February NATURALIST).

Fascicle I of Arthur and Holway's "Uredinæ Exsiccatae et Icones" gives promise of being a most valuable addition to the carefully studied sets of plants now offered to botanists. The specimens are excellent and the drawings very carefully made. A feature which is to be commended is the uniform magnification throughout the series. In the present fascicle seventeen species, are represented by thirty-one specimens and one hundred and thirty-five figures. When supplied in loose packets the cost is to be three dollars per fascicle, when in bound volumes, fifty-cents more.

Many botanists have in the past few years received the neatly prepared sets of lichens sent out by C. E. Cummings and A. B. Seymour under the title of "Lichenes Boreali-Americani," of which about 150 numbers have been received. Hereafter T. A. Williams will aid the editors named above. This distribution has been so well patronized that a second edition has been prepared.

Professor Underwood's "Hepaticæ Americanæ," constitutes the only recent set of North American liverworts. Although no specimens of this distribution have been received for some time we trust that it is to continue.

The distribution of North American Characeæ ("Characeæ Americanæ Exsiccatae") by Dr. T. F. Allen, of New York City (No. 10 East 36 St.) possesses unusual value, since it probably represents more than any other the immediate results of a critical revision of the species. A recent fascicle contains twelve species mainly of the genus *Nitella*. With these American species there were distributed seventeen Japanese species and varieties under the title of "Characeæ Japonicæ Exsiccatae,"

among which were several of the new species recently described in the *Torrey Bulletin*.

All mycologists who are familiar with the excellent specimens of Sydow's "Uredineen," (published in Berlin), which has now reached its eighteenth fascicle, (900 specimens) will welcome the beginning of a new set by the same author devoted to the *Ustilagineæ*. Fascicle I of this new set "Ustilagineen," containing fifty specimens appeared within a few months.

We should not overlook here the two centuries of "New York Fungi" published by C. L. Shear, heretofore noticed in this journal. The excellence of the specimens commends this collection, especially to those who are beginning the study of the larger fungi (*Hymenomycetæ*) to which it is mainly devoted. We understand that Century III is nearly ready for distribution.

Nor must we omit the useful "Economic Fungi" published by A. B. Seymour and F. S. Earle, of which seven fascicles (of about 50 species each) have appeared. The work deserves to be successful.

We do not know whether the "Uredineæ Americanæ," of which one fascicle was issued a year or so ago by M. A. Carleton, is to continue or not. It certainly made a good beginning.

We may add to the foregoing the distribution of "Canadian Lichens," and "Canadian Mosses" by John Macoun of the Canadian Geological Survey, which contain good specimens, neatly prepared and often of much interest on account of the region from which they were obtained.

Verily the tribe of makers of exsiccati is a numerous one, and were we to include all those devoting themselves to supplying plants of particular regions, it would be increased three or four fold.—CHARLES E. BESSEY.

**Some Recent Botanical Papers.**—Dr. T. F. Allen's valuable work, "The Characeæ of America," has made progress by the issuance of another fascicle containing descriptions and illustrations of nine species of *Nitella* of which three are new to science. Too much praise can not be given to the industrious author, who for love of Science, brings out, from time to time, the successive parts of this first work on a group hitherto little studied in this country.

Ellis and Everhart have added a convenient Analytical Key to their *North American Pyrenomyces*, which has hitherto lacked that useful portion. The same authors have recently distributed a reprint from the proceedings of the Academy of Natural Sciences of Phila-

delphia (65 pp.) containing descriptions of new species of fungi from various localities. Of these there are Hymenomycetes, 10 species; Pyrenomycetes, 72; Discomycetes, 22; Sphaeropsidæ, 91; Hyphomycetes, 46; or a total of 241.

"The Special Senses of Plants" is the title of a thoughtful and suggestive paper by Dr. J. C. Arthur, published in the Proceedings of the Indiana Academy of Sciences. The author discusses gravity sense, light sense, moisture sense, heat sense, and contact sense. The paper should be read by every teacher, whether he teach botany or not.

Professor Penhallow's paper, "Observations upon Some Structural Variations in Certain Canadian Coniferæ" in the Transactions of the Royal Society of Canada, contains histological discussions pertaining to *Pseudotsuga douglasii*, *Larix occidentalis*, *Pinus ponderosa* and *Pinus albicaulis*. It is illustrated by four plates containing nineteen figures.

The always welcome Annual Report of the State Botanist of the State of New York has recently been received. As usual it shows that the flora of a region as well worked as that of New York contains many hitherto undescribed species, mostly of the lower plants, but one flowering plant (a *Carex*) proves to be new.—CHARLES E. BESSEY.